

PHOTONICS - STRATEGIC TECHNOLOGY IN THE AREA OF NATIONAL SECURITY SYSTEMS

During the 1st conference covering the area of optoelectronics, organized last month by the PCO S.A company, the status quo of photonics in Poland has been summed up, along with the national successes and the fields, in which further development is desirable. The attendants have shown that photonics is an area which becomes virtually omnipresent, and which plays a significant role, starting from the energy industry, finishing with robotics, space technologies or the national security.

Photonics is an interdisciplinary research area which fuses the problems related to optics, electronics and IT. During the 1st Optronics For National Security and For The Security Of The Citizens Conference, the experts stressed it, multiple times, that Poland has achieved significant successes in the field. The local companies and research institutes, which create the global trends in the area of photonics, were mentioned, particularly within the field of materials and photonic components. Businesses that deal with modern metering systems were also vividly discussed. It has been noted that the Polish manufacturers are capable of creating equipment and devices that are highly desirable all around the world, and that are being used, for example, by the US Army, while the Polish companies of the armament sector working for the Ministry of Defence, make use of the imported elements and components, most of which could be easily replaced with the Polish products.

Photonics, as a field, is a key technology in defence and security systems, thus it is so important to maintain an exchange the experiences and maintain an effective dialogue between the representatives of science, industry and research institutes. This year, we have been able to organize, together with our partners, the first optronics conference in Poland, which - I hope - will have an impact on improvement of cooperation between the scientists, the army and the industry, in the area of optoelectronics.

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Due to the fact that the Polish industry has no significant needs, when it comes to use of the photonic devices and materials, some of the exported products of this type return to Poland as significant and relevant elements of costly components.

During the conference, it was noted that the current procurement and research and development system, based on the Ministry's of Defence decisions in force, is not beneficial for development of new systems that are utilizing the innovative, Polish technologies, even though this issue has been noted by the defence sector of the Polish industry. Three causes for such status quo have been diagnosed. The first cause stems from the criteria used to assess the realized projects, based on rigorous rules related to the provisions and deadlines. Short implementation deadlines and significant contractual penalties force the companies involved in the tenders to use the technologies that are already known, proven and which guarantee that the implementation period is going to be short.

Secondly, there is an existing requirement of full transfer of the copyrights, related to the new products and related technologies. Thirdly, there is no support for the research projects which - currently - usually end up with development of a technology demonstrator. The phases of final refinement and introduction into mass production are virtually absent.

In order to make developments in the area of photonics more efficient, the actions indicated during the conference are required. Here, we mean support, provided through a global promotion of the Polish companies. This issue is quite important, since most of the manufacturers of photonic product in Poland have a status of a research institute, with very limited or without any assets that could be used for the marketing purposes at their disposal. It has also been noted that in order for this area of industry to develop, support for the companies that are processing the manufactured elements and components into advanced optronic systems, is also required.

Finally, another area of activities that could be focused on, in order to boost the development of the Polish photonics, is seen in development of research programmes and technology transfer for the industry, with the latter process being better tailored and more adequate to the industry's needs.